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# DEMONSTRATION FARM PFRA



DEPARTMENT  
OF REGIONAL  
ECONOMIC  
EXPANSION

*General publication 3*

## **DEMONSTRATION FARM**

**A demonstration center where dry-land farmers in the area of the South Saskatchewan River Project can observe the results of irrigation farming**

# DEMONSTRATION FARM PFRA

**During the initial investigations into the construction of a large dam on the South Saskatchewan River, it was thought advisable to develop information on irrigation practices for those farmers who would be converting to irrigated farms when water was available. In 1949, as a result, the Canada Department of Agriculture established a Pre-Development Farm on land donated by the town of Outlook, Sask. The farm is operated under the direction of the Prairie Farm Rehabilitation Administration, now part of the Canada Department of Regional Economic Expansion, and has been renamed the PFRA Demonstration Farm.**





**From the beginning the Farm has been a centre where irrigation farming techniques have been demonstrated, and information has been provided on the production methods and problems that might be expected by irrigation farmers.**

**Since the South Saskatchewan River Project's water storage and distribution works have been completed and water is now being used for irrigation in the area, the functions of the Farm are becoming more diverse. In addition to the need for demonstrating crops and the types of equipment available for irrigation farming, the farmers require advice on managerial requirements for irrigated crops and enterprises. As irrigated farm development progresses, local farmers are using the experience of the Farm as a base on which to make decisions concerning their own operations. They can examine results of new techniques in action before deciding to commit themselves financially.**

*Testing butyl lined ditch*



**The Farm's enterprises in mechanical and natural grazing of livestock under irrigation conditions have provided useful comparisons and help to identify the problems and benefits of each method of feeding. A project to produce calves from cows in confinement rather than on pasture was initiated in 1969.**

**Work is conducted with new crop varieties, fertilizer applications and chemicals for weed control. A variety of canal linings have been installed for comparison purposes; these include concrete, butyl rubber, polyethylene and aluminum.**

**The programs at the Farm are planned to accommodate the needs of irrigation project officials. This is done by initiating special trials and demonstrations to illustrate, or test, cropping practices or methods before extension personnel recommend them to farmers.**



## SIZE AND LAYOUT OF FARM

The Demonstration Farm covers approximately 155 acres and is located immediately south of the town of Outlook. It is divided into 10 fields of 10 to 12 acres each; a pasture of 21 acres; and the farmstead, complete with shelterbelt, of 11 acres. Another 10 acres are in ditches, roads and field hedges. The pasture and five of the fields are gravity irrigated (border dyke and furrow), and five fields are sprinkler irrigated.

Studies have been made on the efficiency of various sprinkler equipment and useful comparative data has been compiled on both gravity and sprinkler methods.

Irrigation water for the Farm is pumped from the South Saskatchewan River. An electrically-driven centrifugal pump lifts the water 180 feet through a 12-inch steel line and delivers it to the Farm and the adjacent research plots. In the

*Border ditch irrigation*





*Irrigated potatoes. Hay in background*



near future the water may come from a project canal constructed by the Provincial Government approximately one mile east of the Farm.

The Farm program is based on a 10-year crop rotation. The first six years are devoted to the production of forage crops such as alfalfa and alfalfa grass mixtures, followed by one of cereals, one of row crops, and finally two years of cereals. Special emphasis is placed on forage production because of the importance of irrigation to the livestock industry. Plans are under way to allot a field, or part of a field, to vegetable production.

In addition to the effects of crop rotations, maintaining good soil fertility requires commercial fertilizers and barnyard manure whenever it is available.

## **APPLIED RESEARCH**

**The Farm is intended for demonstration purposes and is not involved in pure research. However, to demonstrate crops adaptable to irrigation, close cooperation is maintained with the Research Branch of the Canada Department of Agriculture. The Research Branch operates experimental plots, adjacent to the Farm, where detailed studies of various crops and their water and fertilizer requirements are carried out.**





**Some of the latest research has been with dwarf Mexican wheat varieties, corn for silage, and a winter survival study of various forage crops.**

**A Meteorological Station provides information on temperatures, precipitation, humidity, wind velocities, hours of sunshine and other weather data necessary to farm and research operations.**





### **CROP EVALUATIONS**

Since its beginning in 1949, the Farm has demonstrated the variety of crops that can be grown successfully under irrigation. Cereal crops have been found to produce very well in rotation with hay and forage crops. Alfalfa and forage grasses have given good yields. Irrigated pastures show promise for high returns through livestock. Potatoes, silage corn, sugar beets and sunflowers have yielded well. Field peas, flax and rape seed have also been grown at the Farm with good results.

Orchard and garden fruits such as strawberries, raspberries, gooseberries, plums, currants, apples, crabapples, sandcherries, chokecherries and saskatoons have been grown on a farm garden basis but not as commercial enterprises.





### **MACHINERY EVALUATION**

The Farm has been a proving ground for various types of equipment intended to minimize labour and reduce operating costs. This includes such implements as a multi-functional hay making machine which cuts, conditions, and windrows hay in one operation. Then there is the automatic bale stacker which picks up bales from the baler, groups them in an orderly manner, and stacks them automatically by hydraulic control from the tractor seat. A machine for chopping forage in the field, and equipment to haul and store the feed, demonstrate an alternative method of handling. Specialty crop equipment for potatoes, corn and other row crops is also on the farm. In addition to two wheel-move sprinkler systems, there are a number of small water pumps, each one designed for a specific purpose.



*Wheelmove sprinkler irrigation system*

## **FARMSTEAD AND BUILDINGS**

The farmstead has been designed for beauty and enjoyment in addition to efficiency in handling the work load and reducing wind effects in the yard area. The shelterbelt includes Manitoba maple, green ash and Colorado spruce as well as Manchurian elm. A polyethylene-lined dugout provides water for livestock and for irrigating the orchard, lawn and garden areas.

Buildings include two residences, an office, machine shed, dry feed shelter, horizontal silo, feed mill, four steel granaries, shop, garage and two bunkhouses. There is a spacious storage cellar for storing root crops at the south side of the Farm.

Field shelterbelts between gravity irrigated fields tend to reduce wind speeds and evaporation. Shelterbelts on land irrigated by mechanized sprinklers must be carefully sited to avoid interfering with the sprinkler units.



*Filling trough from forage harvester  
in mechanical grazing demonstration*



## **ESTABLISHED PRACTICES**

The many years of experience gained through operation of the Farm has enabled the formulation of certain basic principles with respect to irrigation farming in the area. For instance, crops grown in rotation must be such that none interferes with the crops that follow. This is particularly important where chemicals are used for weed control. Also, crops produced must serve to maintain soil structure and fertility, and must complement each other so as to make the most efficient use of machinery and labour.

Herbicides and fertilizers are a great asset to an irrigation farm but they should be used wisely.

Wherever forage crops are grown, livestock are desirable so that the produce raised can be utilized or processed on the farm.

Production and handling methods must be designed to accommodate processing to suit the market. This is particularly true in the case of vegetable and specialty crops.

## **TOURISM**

**The number of tourists visiting the Farm has increased steadily as local people take a more active interest in the demonstration program. Many farmers with specific problems come to the Farm to talk with experienced personnel and to watch an irrigation system in operation.**

**In addition to visits by individuals from the area, other provinces and foreign countries, numerous groups are taken on conducted tours of the Farm.**



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***Research plots. Demonstration Farm yard upper right***







